

e-Everything: e-Commerce, e-Government, e-Household, e-Democracy

14th Bled Electronic Commerce Conference

Bled, Slovenia, June 25 - 26, 2001

**Developing Synergies between Faculty and Students
of European Business Schools through
Telecommunication and Computer Supported
Cooperative Tools**

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Abstract

The goal of this paper is to describe a learning experiment which was initially the result of the collaboration between two Management Schools of the Community of European Management Schools (CEMS) network (Hautes Etudes Commerciales and London School of Economics) and which is being extended to other schools within (Wirtschaft University, Vienna) and outside this network (University of Maribor, Kranj). The learning experiment is a joint course on Project Management in an international environment when teams of students made up from students from each school use various means of communication to work from the distance to complete a project in limited time. Similarly, the faculties collaborate on teaching the course to their students, face to face, and to distant students at the same time using video-conferencing. Finally we shall draw some conclusions on the benefits and problems related to joint course development between academic institutions.

1. Project Management and Distant Collaborative Work: Goal of the Course

In 1996 research started at HEC on the use of PC-based video as a tool to support co-operative work in teaching and research in management between faculty of European Business schools. This research described in [5] was seen as a natural extension of our research work on supporting distributed problem solving, it did not however involve the task of joint development of an computer application or of completing a project and was not aiming at creating a new course. In 1998 it was decided to extend this research to the task of joint creation of courses between European Business Schools and the topic "Project Management and distant collaborative work" was selected. This course has been offered, over several years on an experimental basis, with students from several CEMS business schools as a joint course involving faculty from the London School of Economics (L.S.E) and HEC. It has been recently extended to students of the Wirtschaft University of Vienna (WUW) and to students in Organisational Science at the University of Maribor, Slovenia. The goal of this course is to teach students how to solve a problem which has become an essential one in many companies: how to organise collaboration between persons who are of various cultural backgrounds and who are geographically dispersed. This need is the result of the globalisation of economic activity. A good description of the motivation concerning the origin of such a situation can be found in De Meyer [2] for the R&D function. What is true for R&D is also true for all other organisational functions : production, distribution, marketing,... which involve the collaboration of multinational teams. Mergers and acquisitions give birth regularly to situations where geographically dispersed individuals must work together.

This type of situation is also at the heart of the challenge that Universities and Business Schools have to face if they wish to compete on the international market to provide the best possible students to global organisations; or if they wish to teach their students how to create organisations which will build their competitive advantage in their ability to create synergy between knowledge and competencies of their members whatever their location . In order to meet this challenge it is necessary for their teaching and research staff to collaborate at an international level. Also the rationale for such a course comes from the authors conviction that supporting collaborative work among people by organising them in project teams and providing them with the right software to facilitate knowledge sharing is one of the key factors to improve organisational performance. This is what some recent research work tends to support [14]

One of the ideas behind having these teams working together is the idea of collaborative learning and co-operative problem solving . One is looking for participants to learn from each other. The course we set up in order create a distributed *learning and teaching environment* to train students to be more efficient in such a situation. The teaching is based on a methodology which mixes several *learning models* and relies on several *communication technologies*. During this

course the students will have to follow lectures, make exercises, read and discuss reading packages and participate in a project with distant partners.

1.1 Topics of the Course

The course deals with six subjects which are the following:

- project management (organisational point of view)
- project scheduling, project control and Project network analysis (PERT, critical path analysis,..)
- group dynamics
- software to support distant collaborative work
- management of diversity and how to use diversity to enhance group work
- effective writing and speaking in English

For each subject there is a set of Powerpoint slides. The slides as well as the syllabus, exercises and some of the reading matter of the course are available on the course web site.(see [9]). The innovative character of the course is not that the course materials is put on line and accessible from the web site but this innovative character comes from the skilful use of communication technology to facilitate knowledge sharing and distribute problem solving . The above topics are taught by professors of HEC and followed by the CEMS HEC students in the class room and by LSE students from the distance using video-conferencing. Reading packages are read by students and their main ideas are presented by students and are discussed in class. If the presentation is done by an HEC student the presentation is followed by video by the L.S.E students and vice versa. The discussion is shared using video.

1.2 Students Projects

Topics for projects are provided to the students. As of today we have explored two kinds of projects. Some are taken from the field of information systems and some are not. Projects are of different levels of difficulty. In the research we carried out on the use of collaborative software we distinguish four levels of difficulty for the projects:

- projects requiring the search for information at the library and on the internet.
- projects requiring the collection of data from both French and British organisations.
- projects requiring the collection of data and their treatment with statistical software
- projects requiring the development of a computerised application.

All projects have as deliverables: a report and a Powerpoint presentation. Projects requiring application development have been using mainly spreadsheet. Given the

time available, we cannot teach the students a new software tool such as a DSS development environment as was done between faculties in our early research [5]. However we are considering the development of a Web site using web publishing software as this kind of development tool is now known by CEMS business students. The students have to select a topic for their project from the list provided to them. Then the students have to form teams of four or six students, two or three from each school. Most students do not have English as their mother tongue. Students from around ten different nationalities usually take part in the course. The learning model during student team work is clearly *co-operative* in the sense of Slavin [12]. The learning model used for transferring knowledge on the above mentioned five topics combines the *objectivist (or positivist)* process during lectures with a more constructivist or social model during project teamwork which provides the opportunity of using and testing the understanding and operational character of the concepts and methods. With respect to cultural diversity and its consequences on management this is mainly experienced through the face to face meetings and video contacts however as from the beginning of 2001 we have introduced a formal lecture on this subject .

1.3 Development of the Course Sequence

Several teaching formats have been used for teaching the course. One format consists of 9 meetings of 3 hours over a period of a term. The other format which was experimented with, was a block course of two weeks with 9 meetings of three hours each. The first session is used to present the course, and a list of possible projects as well as providing the list of participating students with their e-mail addresses. The presentation of the syllabus and teaching goals of the course are explained by a professor of HEC with the L.S.E, students following by video from London. The students then have to, each in turn, present themselves using video. The rest of the class time is used by a lecture on the main concepts of project management followed by students, present and distant and to discuss the subject proposed for project work. If a group of students has decided to take a subject based on a case study such as the SEDIL case a presentation of the case is made. The SEDIL case and its solution are described in Klein, Grubbstrom [6]. We shall use this case to explain briefly the teaching sequence.

The second session is used for a lecture on project scheduling and control. The exposé concentrates on how to break down the project into tasks, how to identify the logical relationships between tasks and how to build and analyse the project network. A small example is used to present the use of a PERT graph in order to compute the earliest completion time of the project and identify the tasks on the critical path.

A negotiation then takes place to form teams between the HEC and L.S.E students. The teams usually consist of four students to six students. The rest of the class time is used to work on the definition of the project and to come to an agreement on its scope. The students assignment for the next session is to formalise the flow of goods in the plant. This assignment is group work, the students have to co-operate

in order to identify the relations between variables and to formalise them under the form of mathematical and logical expressions. This work requires that the relations between variables are discussed, between the students working locally at HEC and L.S.E, using e-mail and the share workspace of the PC based video system used.

The third session is devoted to an exposé on group dynamics. The goal of this exposé is to present useful concepts related to group work so that the students have a minimum of background about what are the conditions for a group to work efficiently. The limits to what can be expected with respect to the reliability of knowledge concerning human behaviour and group behaviour forecast are stressed. Following this discussion the students present their first set of relations for modelling the plant. A first report presenting their analysis of the problem, their model of the plant and the decision rules is handed in to the teacher.

The fourth class is used for a presentation and discussion of the milestone report. This is carried out by the joint L.S.E–HEC teams and is discussed by video. The goal of this discussion is to enable the teacher to ensure that the model of the plant is correct. The students are then requested to make a break down of their project into meaningful tasks. Their assignment for the next class is to provide the list of tasks of their project with the earliest starting date, their estimate duration, precedence between tasks and to build the corresponding PERT chart. Responsibility for each task should also be indicated on this list. This assignment implies an agreement for the task allocation and, as a consequence, has to be discussed between the members of each team. The work with the development software (EXCEL most often) can now start and the development of a first prototype of the application is each team assignment for the next meeting. A first attempt to use SAP for application development is presently made with WU students.

The fifth class is devoted to a lecture on managing diversity and how diversity can provide a competitive advantage. The reasons explaining the existence of more diversity in organisations today and on the various facets of diversity defined as differences among people based on their identification with various groups, some visible (gender, ethnicity, language spoken) other less visible (physical ability, religion, family status, value system,...) are presented. The rest of the class is used by the teacher to check that the plant model of each team is correct . The teams are then given a set of demand figures to work on. Their task is then to find the decision rules for setting at each period the production level and the raw material orders which lead to the minimum overall cost per unit. The student have a slot of video time per team to start discussing ideas about how to improve the rules.

The sixth meeting is devoted to a lecture on software for collaborative work and coaching the teams.

The seventh lecture is on effective presentation in English. The goal of this lecture is to help the students prepare their final presentation and improve their report. The rest of the class time is used to coach the teams of students working on improving their application and discuss with them the structure of their presentation. The

assignment for the next class is to prepare a set of about 10 Powerpoint slides to be discussed with the other members of the team and to prepare their presentation.

The eighth meeting is used essentially by students to test their presentation and discuss remaining problems with faculty. A slot of 15 minutes of video is allocated to each team for the rehearsal of their presentation.

The ninth meeting is devoted to the final presentation of the students. During the presentation using live video the students share the Powerpoint slides which are displayed on a large screen in the two classes. The rest of the class is then devoted to a debriefing session and evaluation of the seminar.

2. Technology and Equipment Used

2.1 Setting of the Class Room and Choice of Network Connectivity

The course uses a class room equipped with 6 ISDN lines and 12 PC connected to the local area network of the school. This local area network is itself connected to internet. The room used is one of the standard rooms used for classes requiring access to a PC. The room is equipped with a video projector which can be connected to a PC and display the PC screen on a large white board. The room is also equipped with standard loudspeakers which can be connected to a PC. As can be seen from the above description, this room is simply a room equipped with PC to which was added several ISDN lines to connect one of the PCs which is running the video-equipment, if a PC based video equipment such as Intel Business Video Conferencing (IVBC) is used. If the video equipment used is not PC based such as the Pictoretel Venue it must be possible to move in the equipment into the room . As described, to the contrary of e-mail the students do not have free access to the video equipment . The teams of students use the video-equipment one after the other after signing up. With respect to the network connectivity the experience we already had led us to select the use of ISDN lines rather than the Internet which could not provide neither a sufficient nor a stable bandwidth . Initially working at 128 kbits/s we then move to 256 kbits/s or 384 kbits/s as we improved our equipment but with the corresponding increase in ISDN communication cost. The work at 256kbits/s was found to be the best compromise between cost and quality (video and audio). This communication cost being of about 66 euro per hour between Paris and London or Paris and Vienna.

2.2 Types of Video Equipment Tested

Two types of video equipment were mainly used. The Intel IVBC 500 and the Pictoretel Venue 2000. We shall describe briefly these pieces of equipment starting with the INTEL equipment. The first type belongs to the category of PC-based systems the second is not a PC based system.

The Intel Proshare and then the Intel Video Business Conferencing (IVBC) equipment we used were initially selected because it was the system we used in our previous research project [5]. This system was interesting in the sense that it had two very important characteristics: it was relatively inexpensive (about 1200 euros) and it allows students to share during a live video session, in theory, any software running on the PC. With respect to the types of possible connections PROSHARE and IVBC supported ISDN lines, modem for standard telephone lines and networks. All PCs connected during a video conference must use the same type of telephone line or network in order to make the connection. With respect to the type of protocol supported for networks the two protocols supported at the beginning of our tests were Netware IPX and TCP/IP. The IVBC equipment fulfills the two standard norms for video conferencing. The ITU H.320 norm and the T120 norm. We have inter-operated with Pictoretel equipment and View Station from Polyspan, Inc. without difficulty. The IVBC equipment can be used only at the transfer rate of 128 kbits/s. We have had no opportunity to test the INTEL Teamstation 5.0 which can use a transfer rate of up to 512kbits/s. The advantage of the INTEL equipment is that it can be installed beforehand except the camera which the professor would normally bring with him.

The Pictoretel 2000 is a video equipment which is not PC-based in that sense that it is not running on a PC and using a PC monitor to display the image from the camera. The system is using TV monitors and a special key board. This equipment fulfils the ITU H320 standard as well as the H.261 standard for video coding but does not fulfil the T120 standard for data and application sharing. The big advantage of this equipment is that it supports a transfer rate of up to 512 kbit/s and thus giving a better video and audio quality. It was however at the time of our experiment much more expensive (about 5300 euros) than the IVBC equipment.

3. Role of the Professor

The professor's role in this course is of three types: *teaching* the various lectures, *animating* the work of the teams and *coaching* individual students.

In our case we have on each side two faculty members teaching the course. One faculty from the Language Centre, the other faculty from the MIS department. The role of the faculty from the Language Center is to teach the topic on effective writing and speaking in English since English is used as the working language in the course; the role of the MIS faculty member is to teach the topics related to project management and Computer Support Co-operative Work software. The group dynamics and work in a multicultural environment topics are usually considered to be in the domain of organizational behavior. The second task of the faculty is to animate the teams and coach the students when working on the project they have selected. The main tasks to be performed for a project are following:

- forming the team & project selection
- discussing nature and scope of project

- breaking down the project into meaningful tasks
- allocating responsibilities for the tasks
- working on the project & writing the report
- preparing the presentation

Usually the students on each side select the project which best correspond to their interest and then they try to look for distant partners. Since one important topic in the course is group work efficiency, the topic of group dynamic and collaborative problem solving is addressed early in the course. One useful teaching idea is to request the students to put by writing their own goals and their perception of the project goals. The professor should try to identify the potential problems which could rise in the group due to discrepancies between goals of the team members. Some basic idea about identifying motivation and getting commitment from members of the teams should be discussed. It is also an important task of the faculty to check that the scope of the project is adequate with the time available for the course. A very important task for the faculty is to check that the students are using and discussing during their project the concepts and methods presented and discussed during the five lectures.

4 Evaluation of the Course

4.1 Global Evaluation of the Course

Since the present course which is offered to 16 HEC students, 22 WU students and 9 Kranj students has not yet been evaluated we shall provide the evaluation obtained during the course, offered for the first time with the format of a block seminar, in September 2000 between HEC and L.S.E. The evaluation uses a questionnaire described with the pilot course in the final report of the European Dilemma Project [8].[3]. The evaluation of the overall satisfaction of the course was made on a scale from 1 to 9. The satisfaction of the course was for 40 % of the students average (grade 5) and for 54% of the students better than average (6 and above). Only 4 % of the student have graded the course below average. However following discussions with the students it seems to be clear that the main reasons of dissatisfaction were that, for this block seminar, the number of LSE students was rather low. This was regarded as the major problem but however there were also other problems due to external constraints and the availability of the equipment. This tends to prove that it is important to have roughly the same number of students from different schools in each team.

4.2 Motivation of the Students with Respect to the Project

The average time spend by the students on the project was about 62 hours (89 for the LSE students, 55 for HEC students). We consider this amount, even if slightly

overestimated by the students, as important and confirming the strong motivation raised for the course for these students. The distribution of time spent by students using the different means of communication : face to face, video and e-mail for each main task of the project is presently being analysed. A first result of this analysis is that the video medium is among the means of communication nearly always used for supporting the purpose of negotiation in getting the distant students to join the project. Face to face meeting being used for this decision by local students. In a similar way, when the student have the choice, the task of getting to know the other distant students is nearly exclusively supported by video with some use of e-mail.

It is interesting to study the student motivation for following the course. In the questionnaire we use a 5 level scale and we provide a list of 6 standard motivations for taking the course, together with the possibility to express a motivation not on the list.

This questionnaire was tested during the Spring term of the 1999-2000 academic year and used in the current form during the block seminar of September 2000. The intensity of motivation as perceived by the student at the beginning of the course is given in table 1. To the exception of one student, who was only interested by this course due to the need to have a credit for an elective course, all students rank their motivation as average or high with a much higher proportion as high. With respect to the reasons for the motivation the following possibilities were proposed:

- the need for a SP12 credit (elective course in CEMS terminology)
- high interest in the technology used
- interest to follow an elective in English
- interest in the reputation of the lecturers
- interest in the subject matter of the course
- desire to have the opportunity to get to know students from another universities
- other reasons.

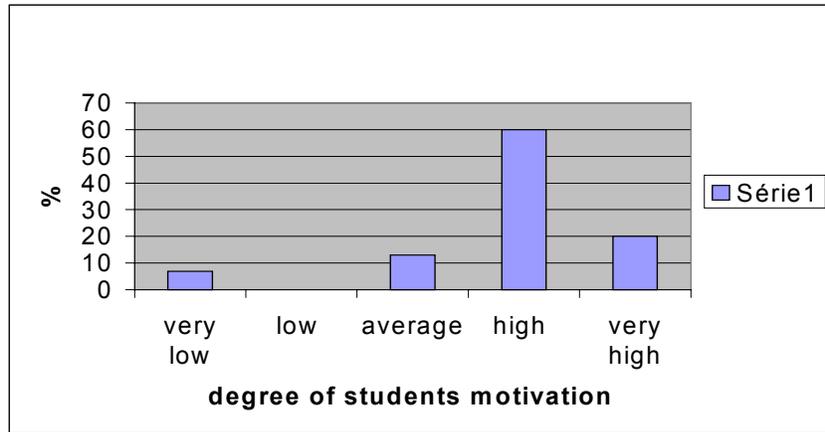


Table 1: degree of students motivation

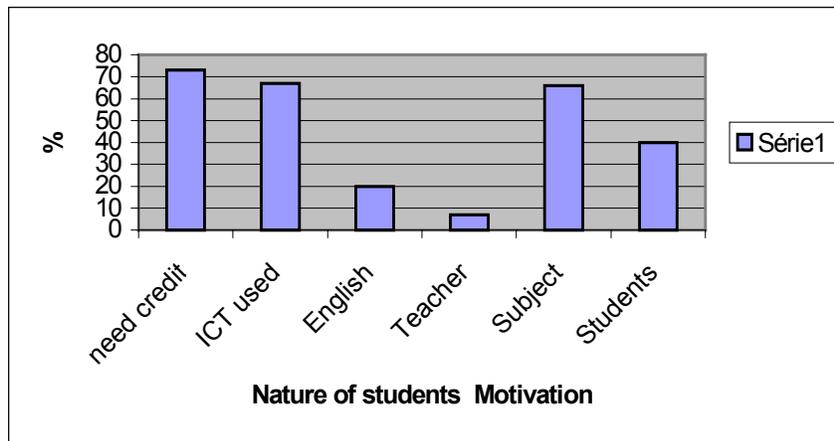


Table 2: nature of student motivation

The results of the questionnaire analysis is given in table 2. The most frequent reason (74 %) given for taking the course was the need to have credit for an elective course which could in fact be obtained by following other courses. This was, of course, an administrative necessity. The second reason, most frequently cited, is the subject of the course (70%). The third most frequent reason given was the technology used (68 %). The answers to this last question has to be seen in relation with the background knowledge of the students concerning these tools. As shown in table 3, if all the students were already using e-mail on a regular basis, only a small number in fact, had some experience of public internet forums and only a small

percentage had any experience in video conferencing, and none of them had any experience of group DSS.

The personal goals of the students and their perception of the course goal can be pinpointed more precisely by asking them for their opinion in writing. This information is used to help diagnose potential problems in the team .

	Never used	Some use	Use regularly
Video-conference	60 %	33%	7%
e-mail	0%	0%	100%
Audio-conference	87 %	13%	0%
forum	40%	60%	0%
Group DSS	100%	0%	0%

Table 3: previous experience of communication tools by students

5. IC Technology and Strategic Alliances between Academic Institutions

5.1 Conclusions from the Experiment

A certain number of conclusions can be drawn from this experiment. First it was possible to offer successfully a joint course between two schools (three in the most recent experiment) with the lectures shared by the faculty of each school. The students of each school stayed in their school and attended lectures of distant faculties and worked in teams using PC based video and e-mail.

This use of ICT enabled a larger number of students to have the advantage of a specialised course which required only a reasonable investment and operating extra cost for each school. To the contrary of the Bonn-Geneva distance learning experiment initially using ATM connection, described by Tschritzis [13] only low cost equipment and lines were used in the HEC-L.S.E and the HEC-WUW-Maribor University experiment. These costs should still decrease in the future with the availability of fast internet (Internet2) which will match or outperform transfer rate of ISDN lines.

During this experiment a mix of various learning models and communication technologies was used in order to transfer knowledge related to the topics of the course and to obtain change in the students behaviour. We believe it would have been impossible (as well as being more costly) to teach this course, at the level of quality required, by pure distance learning. This was because all the members of the faculty involved, were convinced they would lose something essential by abandoning the possibility of face to face personal exchanges with their students. In addition they would not have had the time to make the important investment of

formalising and putting entirely on line all the knowledge transferred during this type of course (assuming this is possible !).

5.2. Importance of Developing and Offering Joint Courses between Schools

We are convinced, after this three year experiment, that the idea and initial vision we had of developing synergies through team teaching by faculties offering this type of course to students also working in teams through a mixture of PC-based video and e-mail, is a good one.

This conviction comes from the fact that each faculty has been able to use a wider set of teaching documents that he could have done alone, and also from the fact that the quality of the course content was enhanced due to the opportunity of discussing and improving it with experts not available locally. In other words in this course the technology has not reduced the amount of direct interaction between faculty and students and between students and faculty themselves but has increased it. Furthermore, we are convinced that our students will use these technologies regularly in their professional lives to manage projects with distant partners from various cultural backgrounds. As a consequence it is important to train them to master these tools. We also believe that these technologies, when properly used, can considerably enhance the possibilities of offering better quality courses. This better quality is obtained by pooling resources in terms of faculty and teaching material for a particular a course. This remark however is valid *only for existing* knowledge and as long as faculty having *professional mutual esteem* and *motivated to collaborate* in this kind of learning experiment can be found in each school .

The model of collaboration we have developed which mixes the use of synchronous video-conferencing and asynchronous communication through e-mail and other web based tools can be used in most fields of management and engineering studies.

It should be clear that *networked team teaching* as we have described it provides a very valuable experience of working in a global, distributed environment. It opens new strategic possibilities of alliances between academic institutions and academic institutions and companies. However we have observed that the management of Business Schools and Universities have not yet integrated this possibility into their mind set. The development of this kind of course which emphasizes the improvement of quality through group work and synergy between talents of individuals is not taken sufficiently into account in the sense that management of schools and universities does not agree easily to the allocation of the supplementary resources needed to teach this kind of course. Management is also reluctant to adapt their administrative rules to take into account constraints *between* institutions. Helping to solve these problems could be the natural role of an organization such as the Community of European Management Schools.(CEMS) [1].

5.3 Problems Raised by Inter-Institutional Co-Operation

The *inter-institutional co-operation* has been so far, probably the most difficult problem to solve. This is because this kind of co-operation raises difficulties usually outside the control of most faculty member, and requires obtaining the support of the administration and university management.

Three problems should be solved before any attempt is made to teach such a course:

- the identification of professors from two different institutions willing to develop a course jointly,
- the possibility to offer the course in each University participating to the experiment.
- the possibility to synchronize, if only partially, classes of the course held in the two institutions
- the necessity to have equipment installed and checked for reliability .

The first problem can only be solved if there are faculty members who know each other, have mutual professional esteem and are willing to collaborate on a common learning experiment. The second obstacle is to find two institutions which can agree to the accreditation of this common course. Some institution will not give accreditation to a course which has not been taught on an experimental basis for at least two years. Furthermore, the length of time and format of the courses may be different from one school or University to the another. Since most classes must have a common time windows for team work and common lectures, synchronisation is needed. This synchronisation can be the more difficult as academic calendar vary from country to country and that, what was manageable with two schools become very tough with three .

6. Some Remarks on the Impact of ICT on Teaching

It is not possible to discuss fully the impact of Information and Communication technologies on teaching management (or something else) without distinguishing the impact of these technologies on:

- the *content* of courses
- the *teaching* and *learning* models which includes various kinds of interactions between faculty and students, between students themselves and between faculty,
- the *distribution* or *access* to, not only of the teaching materials, but also to the lectures and the interaction between the students.
- the *information systems* of educational and research organisations

By content of the course we mean : the *concepts* of the course and the *methods* which are taught to the students to solve a given class of problems. In the present case, for example, the concepts and methods related to software for collaborative work or to the scheduling of a project are part of the subject matter of the course.

We can check that the students have understood these concepts and methods by following if they apply them properly to the project they are working on.

We think that there is often a misunderstanding between knowledge and information when people are speaking of the impact of ICT on education. A file, a book or an article can contain information, but for a human (or a machine) to have acquired knowledge is not only a question of memorizing the information, it also implies the ability to apply a reasoning process to the memorized information to solve some kind of new problem. One cannot say somebody knows a subject if he can only answer a predefined list of questions. Many a time we have read texts where the term “knowledge management “ was used for “information management”.

The content of a course can be modified through IC technology by providing easier access to *existing* teaching resources (including faculty) by importing or exporting them. However *new* concepts and methods can only be developed through *good research*.

In the case of the present course a team of experts are interacting to provide the course content. The course documents are then made available on a web-site so that it is easily accessible by the students . One important point is that the content of the course goes far beyond the visual documents, the *experts are taking part to the teaching* of the course, each one teaching his domain of specialty a treat which is more difficult to achieve in a traditional course .

By teaching and learning models we mean the *methods* and exercises through which we expect the student to understand the concepts of a domain of knowledge and become able to apply them to solve a problem of the domain. These models must be related to knowledge manipulation and knowledge transmission. As a consequence the work done in the *AI* and *cognitive field* is here of paramount importance.

By information system of the educational organization we mean the ways for the organization to manage the information related to its faculty, its courses, its students. The possibility to store the syllabus and teaching material in electronic form, to register the students to courses, to collect the grades, the evaluation of the faculty, to assign the rooms to the course for classes, the production of the catalogue of courses etc.... are standard functions of such a system.

With respect to access to distant teachers, clearly the video improves the situation compared to e-mail for lectures and it helps distance students who wish to get to know the faculty, but we have no evidence it improves the situation compared to a face to face class meeting. We share the opinion of Tsichritzis that no technology can substitute for human presence[13]. Rather it requires more work from the teacher in class preparation, equipment testing and work not related to the content of the lectures themselves.

Presently most of the emphasis in the literature is put on the *distribution of teaching material* (web pages, slides, text, software,...) for use with *distant asynchronous coaching* using e-mail and various types of forums. An example of this trend is

provided by the collection of papers published in the book *The Digital University* [4]. This emphasis is easily understood because of the huge market of professional education and because most Schools and University have to face an increase in the number of their students and their budget constraint push them to look for ways of diminish the cost per student. It would however be a great mistake not to use, when possible, the technology available to enhance the *quality of the content* and *learning experience* of students and professionals. It is our belief that these results can be better obtained for some types of courses through the combination of technologies related to the course objectives rather than just communication technology. The technologies which we believe are particularly useful in this context are: simulation coupled with knowledge based systems and synchronous and asynchronous communication systems. The interested reader can be referred to [7] for a description of the use of SIMAR a strategic marketing simulation with knowledge based assistants which can be used through a network. Finally we would like to point out that it is essential that academic institutions take the opportunity offered by ICT to improve their ability to fulfill the needs of the market for education. As this market is constantly expanding it is naturally attracting more and more non academic institutions who see students or learners, above all, as interesting clients or customers. Unfortunately this approach does not lead these non academic institution to be primarily concerned with intellectual honesty.

Acknowledgement

We would like to thank Hervé Didiot-Cook from the Language Center (L.S.E), Bernard Dyer from the Information System Department (L.S.E), Peter Hirst from Entreprise L.S.E, Bernd Simon from the Wirtschaft University of Vienna without their help this experiment could not have been carried out. We would also like to thank the INTEL corporation and France Telecom EGT in providing some of the equipment used during this project, The European project Dilemma for financing the pilot course during the academic year 1999-2000. Professor Victor Hargreaves for stylistic comments.

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